incumbent LEC and subject to section 251(c) with respect to those loops. We seek comment on these tentative conclusions.

108. We seek comment on whether there should be a *de minimis* exception, under which a limited transfer of equipment would not make an advanced services affiliate an assign of the incumbent LEC. We ask commenters to address with specificity what should be deemed a "*de minimis* transfer of equipment." We tentatively conclude that, if we were to adopt a *de minimis* exception, such an exception should apply only to transfers of facilities used specifically to provide advanced services, such as DSLAMs, packet switches, and transport facilities, and not to other network elements, such as loops. We seek comment on this tentative conclusion. We also seek comment on whether a *de minimis* exception should apply only to transfers of equipment that the incumbent LEC purchased and installed, or whether it should apply only to equipment that the incumbent LEC has ordered but not installed.

109. We seek comment on whether, if we adopt a *de minimis* exception, there should be a time limitation on when such transfers may occur, and if so, whether six months would be an appropriate period. We also seek comment on whether there should be any difference in treatment for transfers of equipment ordered and/or installed prior to the release date of this NPRM as opposed to prior to the effective date of any rule adopted in this proceeding.

110. We also seek comment on whether, if we allow any transfer of ownership of equipment from the incumbent LEC to an advanced services equipment, the affiliate should have the right to leave that equipment in its current location on the incumbent's premises. We tentatively conclude that to the extent there are space limitations on the incumbent LEC's premises, either in the central office or remote terminal, an affiliate may not leave such equipment in its current location. We seek comment on this analysis.

111. We also seek comment on whether, if we allow any transfer of equipment between the incumbent LEC and the advanced services affiliate, such transfers should be exempt from the nondiscrimination requirement we propose above, for a limited time. Without such an exception from the nondiscrimination requirement, the incumbent would be required to offer such equipment on a nondiscriminatory basis to all entities. We seek comment on whether six months would be an appropriate period for such exemption. We tentatively conclude that even if we adopt such an exemption from the nondiscrimination requirement, such transfers should remain subject to the affiliate transactions rules.[207] We seek comment on this analysis.

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[207] *See* 47 C.F.R § 32.27. In the *Non-Accounting Safeguards Order*, the Commission concluded that, if a BOC seeks to transfer to its section 272 affiliate ownership of a unique facility (such as its official services network), the BOC must ensure that the transfer takes place in a non-discriminatory manner, and must comport with the Commission's affiliate transactions rules. *See Non-Accounting Safeguards Order*, 11 FCC Rcd at 22034, ¶ 266, *citing* 47 C.F.R. § 32.27(b).

112. In addition, we seek comment on whether there are other circumstances under which incumbent LECs should be permitted to transfer facilities to their affiliates. For example, should the transfer of a packet switch used solely for trial purposes make the advanced services affiliate an assign of the incumbent LEC with respect to that packet switch? Commenters should suggest other situations in which transfers of network elements from an incumbent LEC to its advanced services affiliate should not render the affiliate an incumbent LEC.

113. Other Transfers. Incumbent LECs also may seek to transfer to their advanced services affiliates assets other than network elements. In order to provide clarity and regulatory certainty, we ask commenters to provide examples of what types of transfers an incumbent LEC may wish to make to its advanced services affiliate and whether these transfers should make advanced services affiliates assigns of incumbent LECs. Commenters should consider, among other things, transfers of customer accounts, employees, and brand names.[208] In addition, we seek comment on whether, and if so to what extent, transfers of funds from an incumbent LEC's corporate parent to the incumbent LEC's advanced services affiliate should affect the affiliate's regulatory status as a non-incumbent LEC. We also seek comment on whether use by an affiliate of customer proprietary network information (CPNI) gathered by the incumbent LEC is one factor among many that might be relevant in making the determination that an affiliate is an assign of the incumbent LEC.[209] In addition, we tentatively conclude that, if an incumbent sells or conveys central offices or other real estate in which equipment used to provide telecommunications services is located to an advanced services affiliate, that would make the affiliate an assign of the incumbent. We seek comment on this analysis.

114. We tentatively conclude that, if we adopt a *de minimis* exception for transfers of network elements, we should adopt an analogous exception for any transfers of other assets. We also tentatively conclude that if we adopt any exception from the nondiscrimination requirement for transfers of network elements, we should adopt an

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[208] *See* Letter from Russell Frisby, President, Competitive Telecommunications Association, and Heather Burnett Gold, President, Association for Local Telecommunications Services, to William E. Kennard, Chairman, Federal Communications Commission, CC Docket Nos. 98-11, 98-26, 98-32, 98-91, at 3 (filed July 29, 1998) (CompTel/ALTS July 29 *Ex Parte*).

[209] The Commission previously has concluded that customers do not expect that carriers will need their approval to use CPNI for offerings within the existing total service arrangement to which they subscribe. *See Implementation of the Telecommunications Act of 1996: Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Customer Information; Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as Amended*, CC Docket Nos. 96-115, 96-149, Second Report and Order and Further Notice of Proposed Rulemaking, 13 FCC Rcd 8061, 8102-07, ¶¶ 55-59 (1998), *recon. pending*; *clarified*, Order, DA 98-971 (Com. Car. Bur. rel. May 21, 1998). In this proceeding, we consider only the competitive consequences of an advanced services affiliate's use of CPNI, rather than any privacy issues.

analogous exception for transfers of other assets. We seek comment on these tentative conclusions.

115. Other Issues. We also seek comment on whether the network disclosure requirements in section 251(c)(5)[210] are sufficient to notify competitive LECs who might be using, or planning to use, facilities of the incumbent LEC that those facilities are being transferred to the advanced services affiliate. Parties arguing that the existing network disclosure requirements are not sufficient should suggest alternative disclosure rules, including suggestions regarding how soon prior to the transfer the incumbent LEC must notify competing carriers.

3. State Regulation

116. We note that, to the extent that an advanced services affiliate provides interstate exchange access services, the Commission has clear authority to regulate the separate affiliate's provision of those services.[211] To the extent that an advanced services affiliate provides advanced services on an intrastate basis, we encourage states to treat the affiliate equivalently to any other competing carrier offering advanced services. We believe that, if states regulate advanced services affiliates equivalently to other competitive LECs, incumbents are more likely to offer such services through separate affiliates. On the other hand, if states impose incumbent LEC regulation on such affiliates, incumbent LECs are not likely to incur the expense of establishing such affiliates. We encourage the states, therefore, to the extent they require certification for competitive carriers, to certify such advanced services affiliates within their jurisdictions in the same manner as they certify other entities to provide advanced services. Moreover, we encourage states to apply regulatory policies in a nondiscriminatory fashion to all entities seeking to provide such services, including advanced services affiliates that qualify for non-incumbent LEC treatment under the rules we adopt in this NPRM. We believe that such nondiscriminatory treatment is essential in order to encourage innovation and investment in these new technologies. Congress has determined that state actions should not "prohibit, or have the effect of prohibiting, the ability of any entity to provide interstate or intrastate telecommunications service."[212] We seek comment on whether, if we adopt safeguards less stringent than those proposed in this NPRM, states might have a legitimate interest in regulating an incumbent LEC's advanced services affiliate

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[210] 47 U.S.C. § 251(c)(5) (imposing on incumbent LECs "the duty to provide reasonable public notice of changes in the information necessary for the transmission and routing of services using that local exchange carrier's facilities or networks, as well as of any other changes that would affect the interoperability of those facilities and networks").

[211] *See* 47 U.S.C. § 151 (creating Commission for "purpose of regulating interstate and foreign commerce in communication by wire and radio . . . ."). We conclude in the Order above that advanced services offered by incumbent LECs are "telephone exchange service" or "exchange access." *See supra* ¶ 40.

[212] 47 U.S.C. § 253(a).

differently than other competitive LECs offering advanced services, due to increased entanglement of the incumbent LEC and its advanced services affiliate.

117. We note, however, that our discussion here is limited to state regulation of the provision by advanced services affiliates of advanced services. We do not address state regulation of an advanced services affiliate's provision of other services, such as circuit-switched voice services. In addition, we note that some states have expressed concerns about an incumbent LEC's incentive to continue to innovate and invest in the public switched network.[213] We are sensitive to these concerns, and we seek comment on how we and the states can work together to ensure that the incumbent LECs who choose to offer advanced services through affiliates do not allow their existing incumbent LEC networks to degrade.

C. Measures to Promote Competition in the Local Market

1. Collocation Requirements

a. Background

118. In 1992, in the *Expanded Interconnection* proceeding, the Commission adopted rules pursuant to section 201 of the Act that required large incumbent LECs to offer physical and virtual collocation[214] for parties that want to locate interstate special access and switched transport transmission facilities at LEC premises.[215] In that proceeding, the Commission adopted rules governing, among other things, space allocation and exhaustion, types of equipment that could be collocated, and LEC premises where parties could collocate equipment.

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[213] *See, e.g.*, Public Service Commission of Wisconsin and the Indiana Utility Regulatory Commission Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 4.

[214] In a physical collocation arrangement, a competitor leases space at a LEC premises for its equipment. The competing provider has physical access to this space to install, maintain, and repair its equipment. *See Local Competition Order*, 11 FCC Rcd at 15784, n.1361; *Special Access Order*, 7 FCC Rcd at 7391, ¶ 42. In a virtual collocation arrangement, the competitor designates the equipment to be placed at the incumbent LECs' premises. The competing provider, however, does not have physical access to the incumbent's premises. Instead, the equipment is under the physical control of the incumbent LEC, and the incumbent is responsible for installing, maintaining, and repairing the competing provider's equipment. *See Local Competition Order*, 11 FCC Rcd at 15785, ¶ 559; *Virtual Collocation Order*, 9 FCC Rcd at 5158, ¶ 7.

[215] *Special Access Order, supra*, 7 FCC Rcd 7369. Interstate access is a service traditionally provided by local telephone companies and enables interexchange carriers and other customers to originate and terminate interstate telephone traffic. Special access is a form of interstate access that uses dedicated transmission lines between two points, without switching the traffic on those lines. Switched transport is another form of interstate access comprising the transmission of traffic between interexchange carriers' (or other customers') points of presence and local telephone companies' end offices, where the traffic is switched and routed to end users. *Local Competition Order*, 11 FCC Rcd at 15784, n.1359.

119. In 1994, the United States Court of Appeals for the District of Columbia Circuit concluded that the Commission lacked the authority under section 201 of the Act to require physical collocation and remanded all other issues to the Commission.[216] On remand, the Commission adopted rules, which remain in place today, for both special access and switched transport that required LECs to provide either virtual or physical collocation.[217]

120. As part of the 1996 Act, Congress adopted section 251(c)(6). This provision requires incumbent LECs to provide "for the physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier, except that the carrier may provide for virtual collocation if the local exchange carrier demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations."[218] In the *Local Competition Order*, the Commission adopted specific rules to implement the collocation requirements of section 251(c)(6).[219]

121. ALTS, in its petition, argues that the rules adopted in the *Local Competition Order* do not go far enough.[220] ALTS contends that incumbent LECs offer physical collocation, but impede competition by: (1) restricting equipment that can be placed in collocation spaces;[221] and (2) imposing substantial costs and delays on competing carriers for space and construction of collocation cages.[222] In addition, ALTS contends that the space available for physical collocation at many LEC premises is extremely limited, and in an

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[216] *Bell Atlantic v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994).

[217] *Virtual Collocation Order*, *supra*, 9 FCC Rcd 5154; *see also Pacific Bell v. FCC*, 81 F.3d at 1147 (remanding the *Virtual Collocation Order* to the Commission to consider the impact of the 1996 Act on the collocation rules).

[218] 47 U.S.C. § 251(c)(6).

[219] 47 C.F.R. §§ 51.321, 51.323; *see also Local Competition Order*, 11 FCC Rcd at 15782-15811, ¶¶ 555-617. These rules were specifically upheld by the Eighth Circuit in *Iowa Utilities Board v. FCC*, 120 F.3d 753, 818 (8th Cir. 1997) (*Iowa Utilities Board*), *cert. granted sub nom, AT&T Corp. v. Iowa Utils. Bd.*, 118 S.Ct. 879 (1998).

[220] ALTS Petition at 20-22; *see also* e.spire Comments (CC Docket No. 98-78) at 6-7; NTIA July 17 *Ex Parte* at 14-17.

[221] ALTS Petition at 21; *see also* Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 17; e.spire Comments (CC Docket No. 98-78) at 7.

[222] ALTS Petition at 18-22; *see also* Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 13-16; DATA Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 7-8, Att. 1; LCI Comments (CC Docket No. 98-78), Attach. at 22-27.

increasing number of cases, altogether unavailable.[223] ALTS, therefore, urges the Commission to adopt additional collocation rules to ensure that competing providers have access to physical collocation space so that they are able to provide advanced services using their equipment.[224]

b. Adoption of National Standards

(1) Background

122. In the *Local Competition Order*, the Commission adopted minimum requirements for nondiscriminatory collocation arrangements.[225] The Commission adopted rules for, among other things, space allocation and exhaustion, types of equipment that could be collocated, and LEC premises where parties could collocate equipment.[226] The Commission also concluded that state commissions should have the flexibility to adopt additional collocation requirements that are otherwise consistent with the Act and the Commission's regulations.[227]

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[223] ALTS Petition at 20; *see also* Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 14; DATA Comments (CC Docket Nos. 98-11, 98-26, 98-32), Attach. 1 at 4-5; e.spire Comments (CC Docket No. 98-78) at 6.

[224] ALTS Petition at 18-22; *see also* CIX Comments (CC Docket No. 98-78) at 5-6 (collocation is a necessity for competitors because xDSL services can only be offered to customers in close proximity of the incumbent LEC central office; Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 13-16; DATA Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 7-8, Attach. 1; e.spire Comments (CC Docket No. 98-78) at 6-8 (the accomplishment of the purposes of Section 706 requires that the Commission revise its collocation rules to increase available collocation space, broaden the use that may be made of such collocation space, and dramatically reduce the expense of physical collocation); Intermedia Comments (CC Docket No. 98-78) at 5-6 (Commission should revisit the existing collocation rules and include cageless collocation, cage sharing, cross-connection, and removal of equipment limitations in the collocation rules); LCI Comments (CC Docket No. 98-78), Attach. at 22-27; MCI Comments (CC Docket No. 98-78) at 6 (competitive LECs need to be able to collocate xDSL equipment); NAS Comments (CC Docket No. 98-78) at 4-5 (Commission should update central office collocation rules to require that incumbent LECs provide xDSL access providers with a right to small collocation cages or cageless collocation; to permit shared collocation cages and establish cross-connections to cages of other collocated carriers; to permit collocation of xDSL line cards, Internet routers, and remote switching modules); NEXTLINK Comments (CC Docket No. 98-78) at 5-6 (Commission should reopen its proceeding to revise the collocation rules, because the rules were developed before the development of xDSL-based services); CIX *Ex Parte*, CC Docket Nos. 98-11, 98-26, 98-32, 98-78, RM 9244, at 2 (filed July 30, 1998) (CIX July 30 *Ex Parte*) (a competitive Internet industry requires competitive LEC collocation at incumbent LEC offices on terms that are more efficient and flexible); NTIA July 17 *Ex Parte* at 14-17.

[225] *Local Competition Order*, 11 FCC Rcd at 15782-15811, ¶¶ 555-617. The relevant collocation requirements are summarized in the following sections dealing with specific collocation issues.

[226] *Id.*

[227] *Id.* at 15783-84, ¶ 558.

(2) Discussion

123. We seek comment on the extent to which we should establish additional national rules for collocation pursuant to sections 201 and 251 in order to remove barriers to entry and speed the deployment of advanced services.[228] Parties should address whether adoption of additional uniform standards would encourage the deployment of advanced services by increasing predictability and certainty, and by facilitating entry by competitors providing advanced services in multiple states. We also ask commenters to address how any collocation requirements they suggest would affect investment in, and deployment of, advanced services.[229]

124. We tentatively conclude that any standards we adopt in this proceeding should serve as minimum requirements and that states should continue to have flexibility to adopt additional requirements that respond to issues specific to that state or region. In the past two years, a number of states have adopted collocation requirements that go beyond the minimum requirements the Commission adopted in the *Local Competition* proceeding.[230] With respect to each subsection that follows, we encourage commenters to address whether any state approach to collocation might provide useful guidelines for additional national standards to facilitate deployment of advanced services. We welcome input from the states on each of these issues.

125. We note that competitive LECs can pursue remedies for violations of our collocation requirements before the Commission and the appropriate state commissions.[231]

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[228] *See* ALTS Petition at 18-22; MCI July 30 *Ex Parte* at 24; NTIA July 17 *Ex Parte* at 14-17.

[229] *See* Letter from Lawrence Chimerine, Senior VP and Chief Economist, Erik Olbeter, Director, Advanced Telecom and Information Technology Program, and Larry C. Darby, Visiting Fellow, Economic Strategy Institute, to William E. Kennard, Chairman, Federal Communications Commission, regarding Section 706 of the Telecommunications Act of 1996, at 5-6 (dated July 30, 1998) (ESI July 30 *Ex Parte*).

[230] *See, e.g., Joint Complaint of AT&T Communications of New York, Inc., et. al. Against New York Telephone Company Concerning Wholesale Provisioning of Local Exchange Service by New York Telephone Company and Sections of New York Telephone's Tariff No. 900*, Case 95-C-0657, *Proceeding on Motion of the Commission to Examine Issues Related to the Continuing Provision of Universal Service and to Develop a Regulatory Framework for the Transition to Competition in the Local Exchange Market*, Case 94-C-0095, *Proceeding on Motion of the Commission Regarding Comparably Efficient Interconnection Arrangements for Residential and Business Links*, Case 91-C-1174, *Complaint of AT&T Communications of New York, Inc. Against New York Telephone Company Concerning AT&T's Request for Four Collocated "Cages" to be Provided by New York Telephone Pursuant to its Optical Transport Interconnection Service II Tariff*, Case 96-C-0036, Order Directing Tariff Changes for Non-Pricing Terms and Conditions for Collocation (N.Y.P.S.C. Mar. 2, 1998).

[231] *See supra* ¶ 55 (discussing the Commission's expedited complaint process to resolve competitive issues in an accelerated fashion).

We seek comment on any measures we could take to aid enforcement of our collocation requirements.[232]

c. Collocation Equipment

(1) Background

126. Section 251(c)(6) requires incumbent LECs to allow collocation of "equipment necessary for interconnection or access to unbundled network elements . . . ."[233] In the *Local Competition Order*, the Commission concluded that section 251(c)(6) requires collocation only of equipment used for: (1) interconnection for "the transmission and routing of telephone exchange service and exchange access" pursuant to section 251(c)(2); and (2) access to unbundled network elements for "the provision of a telecommunications service" pursuant to section 251(c)(3).[234]

127. The Commission concluded in the *Local Competition Order* that new entrants may collocate transmission equipment, including optical terminating equipment and multiplexers, on incumbent LEC premises.[235] The Commission further concluded, at the time, that incumbent LECs need not permit the collocation of other types of equipment, including switching equipment and equipment used to provide enhanced services.[236]

128. With respect to switching equipment, however, the Commission recognized that "modern technology has tended to blur the line between switching equipment and multiplexing equipment."[237] A current trend in manufacturing appears to be to integrate multiple functions into telecommunications equipment.[238] This trend has benefited service providers and their customers by reducing costs, promoting efficient network design, and

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[232] *See, e.g.*, NorthPoint July 29 *Ex Parte* at 4 (Commission should ensure that competitors actually receive critical services and facilities such as cageless collocation); CIX July 30 *Ex Parte* at 2 (a competitive Internet industry requires swift and effective enforcement of collocation requirements).

[233] 47 U.S.C. § 251(c)(6).

[234] *Local Competition Order*, 11 FCC Rcd at 15795, ¶ 581.

[235] *Id.* 15794, ¶ 580.

[236] *Id.* at 15795, ¶ 581; 47 U.S.C. § 51.323(c). The Commission noted that switching equipment generally performs functions other than providing interconnection or access to unbundled network elements. *Local Competition Order*, 11 FCC Rcd at 15795, n.1417. The Commission indicated that it might reexamine the issue of collocation of switching equipment if it appeared that "such action would further achievement of the 1996 Act's procompetitive goals." *Id.* at 15795, ¶ 581.

[237] *Local Competition Order*, 11 FCC Rcd at 15795, ¶ 581; *see also* NTIA July 17 *Ex Parte* at 15.

[238] *See* NTIA July 17 *Ex Parte* at 15.

expanding the range of possible service offerings.[239] As a consequence of this integration, certain facilities that competing carriers need to collocate to provide advanced services efficiently may also perform switching functions.[240] Because incumbent LECs are currently not required by our rules to permit collocation of switching equipment, competing providers argue that incumbent LECs may delay competitive entry by contesting, on a case-by-case basis, the functionality of a particular piece of equipment (which may perform switching functions in addition to its other functions) and whether it may be collocated.[241]

(2) Discussion

129. We tentatively conclude that incumbent LECs should not be permitted to impede competing carriers from offering advanced services by imposing unnecessary restrictions on the type of equipment that competing carriers may collocate.[242] We seek comment on whether we should require incumbent LECs to allow new entrants to collocate equipment that is used for interconnection and access to unbundled network elements even if such equipment also includes switching functionality.[243] Would allowing collocation of equipment that performs both switching and other functions encourage competitive LECs to use integrated equipment as a means to collocate equipment that otherwise would not be allowed in central offices? Would restrictions on placing switching equipment in collocation spaces prevent new entrants from taking advantage of integrated equipment that may be more cost efficient?[244] We tentatively conclude that, if an incumbent LEC chooses to establish an advanced services affiliate, the incumbent must allow competitive LECs to collocate equipment to the same extent as the incumbent allows its advanced services affiliate to

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[239] *See id.*

[240] *See* ALTS Petition at 21; Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 17; e.spire Comments (CC Docket No. 98-78) at 7; NTIA July 17 *Ex Parte* at 15.

[241] Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 17; *see also* ALTS Petition at 21.

[242] ALTS Petition at 21 (Commission should eliminate restrictions on competitive LECs' ability to collocate remote switching modules, xDSL electronics, Internet routers and other advanced data equipment); *see also* CIX July 30 *Ex Parte* at 2 (a competitive Internet industry requires that incumbent LECs permit competitive LECs to collocate a range of equipment and technologies demanded by end users); Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 17; e.spire Comments (CC Docket No. 98-78) at 7; Letter from Steven Gorosh, Vice President and General Counsel, NorthPoint Communications, to Magalie Salas, Secretary, Federal Communications Commission, CC Docket Nos. 98-11, 98-26, 98-32, 98-91, at 6 (filed July 7, 1998) (NorthPoint July 7 *Ex Parte*); NTIA July 17 *Ex Parte* at 15-17.

[243] *See, e.g.*, TRA Comments (CC Docket No. 98-78) at 16) at 8-9; WorldCom Comments (CC Docket No. 98-78) at 13 (incumbent LECs must allow competitive LECs to collocate their own xDSL electronics at the central office).

[244] *See, e.g.*, NTIA July 17 *Ex Parte* at 15-17 (ban on collocation of switching equipment could discourage use of multifunction equipment and disadvantage competitive providers of advanced digital services).

collocate equipment in order to meet its existing obligation to provide collocation on nondiscriminatory terms and conditions.[245]

130. If we decide to allow carriers (whether they be new entrants or advanced services affiliates) to collocate equipment that includes switching functionality, should we limit such collocation to equipment that performs both switching and other functions (such as multiplexing), or should we extend such collocation to switching equipment in general? If we allow carriers to collocate switching equipment, should we limit such collocation to packet-switching equipment or should we allow collocation of circuit-switching equipment? Does it makes sense to differentiate among technologies? To the extent that parties urge the Commission to permit collocation of switching or other equipment that is not used for interconnection or access to unbundled network elements, as required by section 251(c)(6),[246] parties should indicate what sections of the Act authorize the Commission to require collocation of such equipment.

131. We also seek comment on any other specific restrictions that we should adopt for switching equipment, assuming new entrants and advanced services affiliates are permitted to collocate such equipment. For example, given the lack of space in many central offices, we seek comment on whether we should adopt size restrictions on the switching equipment that a competing provider may collocate at a LEC's premises. Parties should address whether failure to impose size or other restrictions could impede competition by, for example, allowing the first competing provider in the market to request all of the available space, thereby potentially depriving other competitors of the opportunity to collocate facilities. We tentatively conclude that an advanced services affiliate should not be permitted to collocate its switching equipment if there is only enough room at the central office for one carrier to collocate such equipment. We seek comment on this tentative conclusion.

132. We further seek comment on whether carriers should be permitted to collocate other equipment on LEC premises. We tentatively conclude that we should continue to decline to require collocation of equipment used to provide enhanced services.[247] We seek comment on this tentative conclusion. Parties should address whether provision of other advanced services would only be possible if we allow collocation of enhanced services equipment. Parties should further address whether allowing any other equipment in the collocation space will facilitate new entrants' ability to provide advanced services and thereby encourage widespread deployment of such services.

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[245] *See supra* ¶¶ 85-117 (discussing advanced services affiliates).

[246] *See Local Competition Order*, 11 FCC Rcd at 15795, ¶ 581 & n.1417.

[247] We conclude above that xDSL-based services are telecommunications services, not information services. *See supra* ¶ 35.

133. ALTS contends that some incumbent LECs will not allow competitive LECs to interconnect their collocated equipment.[248] Under our current rules, an incumbent LEC is required to allow competing carriers to establish cross-connects to the collocated equipment of other competing carriers at the incumbent's premises.[249] We seek comment on any additional steps we might take so that competitive LECs are able to establish cross-connects to the equipment of other collocated competitive LECs.

134. Finally, we tentatively conclude that incumbent LECs may require that all equipment that a new entrant places on its premises meet safety requirements to avoid endangering other equipment and the incumbent LECs' networks.[250] Some performance and reliability requirements, however, may not be necessary to protect LEC equipment. Such requirements may increase costs unnecessarily, which would lessen the ability of new entrants to serve certain markets and thereby harms competition. We tentatively conclude that, to the extent that incumbent LECs use equipment that does not satisfy the Bellcore Network Equipment and Building Specifications (NEBS) requirements, competitive LECs should be able to collocate the same or equivalent equipment. We further tentatively conclude that incumbent LECs should be required to list all approved equipment and all equipment they use.[251]

135. We seek comment on whether competitive LECs should be required to use NEBS-compliant equipment where the incumbent LEC uses NEBS-compliant equipment for equivalent functions.[252] Parties should address whether allowing competitive LECs to collocate non-NEBS-compliant equipment would introduce new vulnerability into the central office. Commenters should distinguish between those NEBS safety requirements, which address the need to protect central office equipment and telecommunications networks, and NEBS performance requirements, which set equipment reliability standards.[253]

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[248] ALTS Petition at 19-20.

[249] *See* 47 C.F.R. § 51.323(h); *Local Competition Order*, 11 FCC Rcd at 15801-02, ¶¶ 594-95.

[250] Incumbent LECs generally require that equipment collocated at their premises complies with Bellcore's Network Equipment and Building Specifications (NEBS). These specifications, which tend to increase the cost of equipment, include both safety requirements, such as fire prevention specifications, and performance requirements. *See* DATA Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 21, Attach. 1; Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 16-18; NorthPoint July 7 *Ex Parte* at 6-7.

[251] *See* NorthPoint July 7 *Ex Parte* at 7 (asserting that incumbent LECs have refused to allow it to collocate certain equipment (as non-NEBS-compliant), although the incumbent LECs are using the same equipment).

[252] *See* NorthPoint July 7 *Ex Parte* at 6-7 (NEBS performance requirements irrelevant for establishing safety standards).

[253] Equipment reliability standards may be better left to the mutual agreement of the competitive LEC, its customers and its equipment providers. By requiring competitive LECs to satisfy NEBS performance requirements, on top of NEBS safety requirements, competitive LECs may be compelled to engage in

d. Allocation of Space

(1) Background

136. ALTS contends that, although incumbent LECs offer physical collocation, they impede competition by imposing substantial costs and delays on competing carriers for space and construction of collocation cages.[254] In addition, ALTS and many commenters assert that space for physical collocation cages in many LEC premises is extremely limited, and in an increasing number of cases, is unavailable altogether.[255]

(2) Discussion

137. Given that space in incumbent LEC premises is limited, we tentatively conclude that we should require incumbent LECs to offer collocation arrangements to both new entrants and any advanced services affiliate incumbent LECs establish that minimize the space needed by each competing provider in order to promote the deployment of advanced services to all Americans.[256] Such alternative collocation arrangements include: (1) the use of shared collocation cages, within which multiple competing providers' equipment could be either openly accessible or locked within a secure cabinet;[257] (2) the option to request collocation cages of any size without any minimum requirement, so that competing providers

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unnecessary, costly and lengthy testing which could delay competitive LECs' ability to provide advanced services. *See* NorthPoint July 7 *Ex Parte* at 6-7.

[254] ALTS Petition at 18-22; *see also* Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 13-16; DATA Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 7-8, Attach. 1; LCI Comments (CC Docket No. 98-78), Attach. at 22-27; NorthPoint July 7 *Ex Parte* at 1-5.

[255] ALTS Petition at 20; Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 14; DATA Comments (CC Docket Nos. 98-11, 98-26, 98-32), Attach. 1 at 4-5; e.spire Comments (CC Docket No. 98-78) at 6; NorthPoint July 7 *Ex Parte* at 1-2.

[256] *See, e.g.*, CIX July 30 *Ex Parte* at 2 (a competitive Internet industry requires competitive LEC collocation at incumbent LEC offices on terms that are more efficient and flexible); CompTel Comments (CC Docket No. 98-78) at 3, 7 (Commission should reform collocation to provide competitors the option to collocate through more economical and efficient means, such as through smaller collocation spaces, sharing of collocation space, or "cageless" collocation); WorldCom (CC Docket No. 98-78) at 14, n.26 (incumbent LECs should be required to offer competitive LECs a more efficient use of collocation space, space in smaller increments, and shared space).

[257] ALTS Petition at 21; e.spire Comments (CC Docket No. 98-78) at 7.

will not use any more space than is reasonably necessary for their needs;[258] and (3) physical collocation that does not require the use of collocation cages ("cageless" collocation).[259]

138. We anticipate that requiring such alternative collocation arrangements would foster deployment of advanced services by facilitating entry into the market by competing carriers. We tentatively conclude that allowing these alternative collocation arrangements will optimize the space available at a LEC's premises, thereby allowing more competitive LECs to collocate equipment and provide service. Moreover, as ALTS indicates, more cost-effective collocation solutions may spur collocation in residential and less densely populated areas.[260] We seek comment on what specific rules we should adopt to ensure that these alternative arrangements are offered in a manner that facilitates deployment of advanced services to the greatest extent possible.

139. We recognize that section 251(c)(6) requires the incumbent LEC to offer physical collocation unless the incumbent demonstrates to the state commission that such an arrangement is not technically feasible.[261] We note that U S WEST is currently offering a cageless collocation arrangement,[262] and SBC is permitting competitive LECs to share collocation space.[263] We seek comment on whether, if an incumbent LEC offers a particular collocation arrangement, such a collocation arrangement should be presumed to be technically feasible at other LEC premises.[264]

140. In addition, we note that, in the *Local Competition Order*, the Commission concluded that incumbent LECs should be permitted reasonable security arrangements to protect their equipment and ensure network security and reliability.[265] We recognize that adequate security for both incumbent LECs and competitive LECs is important to encourage deployment of advanced services. We now seek comment on the security and access issues

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[258] *See* ALTS Petition at 21 (urging the Commission to require that incumbent LECs offer smaller collocation cages than they currently offer); e.spire Comments (CC Docket No. 98-78) at 7.

[259] *See* ALTS Petition at 21; Covad Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 15-16; e.spire Comments (CC Docket No. 98-78) at 7.

[260] ALTS Petition at 21, n.38.

[261] For the definition of "technically feasible," see 47 C.F.R. § 51.5.

[262] *See* U S WEST Comments (CC Docket No. 98-78) at 32.

[263] *See* Letter from Thomas Horn, Senior Counsel, SBC, to James Galloway, Clerk, Public Utility Commission of Texas, dated November 3, 1997, transmitting SBC Physical Collocation Tariff (section 7 of the Physical Collocation Tariff provides for sharing of collocation space).

[264] *See* NTIA July 17 *Ex Parte* at 15.

[265] *Local Competition Order*, 11 FCC Rcd at 15803, ¶ 598; *see also supra* ¶¶ 134-135.

and any other issues that may arise from a requirement that incumbent LECs provide these alternative collocation arrangements, including cageless collocation. In addressing any security or other issues, parties should identify any safeguards or other measures that would resolve such concerns.

141. With cageless collocation, in particular, we seek comment on whether incumbent LECs should be allowed to require escorts for competitive LEC technicians; whether concealed security cameras or badges with computerized tracking systems would provide sufficient protection; whether security measures should vary, or be allowed to vary, by central office; and what security measures are appropriate for unstaffed offices in remote areas. Given that incumbent LECs currently maintain control over competitive LEC equipment in virtual collocation arrangements, and competitive LECs have access to each other's equipment in shared collocation space, we tentatively conclude that carriers should be able to resolve any security concerns raised by cageless collocation. We ask parties with knowledge of virtual collocation and shared collocation arrangements to address how these arrangements might serve as models for cost-effective cageless collocation arrangements.

142. We further seek comment on any other alternative physical collocation arrangements that we should require to lower the cost of collocation and thereby facilitate competition in the advanced services marketplace. In addition, we seek comment on any other measures that would facilitate the implementation of collocation arrangements and thereby enable firms to enter new markets.[266] Given that space preparation and construction times vary greatly depending on the location, parties should address whether there should be any uniform standards that would apply on a national level. We also ask commenters to address whether we can and should require incumbent LECs to remove obsolete equipment and non-critical offices in central offices to increase the amount of space available for collocation.[267]

143. We also seek comment on other measures that would reduce the cost of physical collocation arrangements. For example, we seek comment on ALTS' proposal that we establish rules for the allocation of up-front space preparation charges.[268] One approach, adopted by Bell Atlantic in its pre-filing statement in the New York Commission's section 271 docket, is that the competing provider would be responsible only for its share of the cost of conditioning the collocation space, whether or not other competing providers are

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[266] We note that, in another proceeding, we are considering whether 251-type obligations should be extended to information service providers. *See Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Review -- Review of Computer III and ONA Safeguards and Requirements*, CC Docket Nos. 95-20, 98-10, Further Notice of Proposed Rulemaking, 13 FCC Rcd 6040 (rel. Jan. 30, 1998).

[267] *See* NorthPoint July 7 *Ex Parte* at 2.

[268] ALTS Petition at 21.

immediately occupying the rest of the space.[269] In addition, Bell Atlantic committed to allowing smaller competing providers to pay on an installment basis.[270] We seek comment on whether we should adopt Bell Atlantic's approach, or any other approach, as a national standard in order to speed the deployment of advanced telecommunications capability to all Americans. We also seek comment on the ramifications that such a national standard would have on the implementation and enforcement of the requirements of section 251 and 271. We tentatively conclude that any standards we adopt in this proceeding should serve as minimum requirements, and that states should continue to have flexibility to adopt additional collocation requirements, consistent with the Act.

144. Finally, we seek comment on how to address the entry barrier posed by delays between the ordering and provisioning of collocation space.[271] We seek comment on ALTS' proposal that we should establish presumptive reasonable deployment intervals for new collocation arrangements and expansion of existing arrangements.[272] Currently, a new entrant typically must first seek state competitive LEC certification, before it can begin to negotiate an interconnection agreement. In addition, competitive LECs have asserted that some incumbent LECs will not allow a requesting carrier to order collocation space until an interconnection agreement becomes final.[273] If certain issues are taken to arbitration, there can be considerable delay. We seek comment on ways to shorten collocation ordering intervals. We also ask commenters to address whether we should set specific intervals by which time the incumbent LEC must or should be expected to provide the competitive LEC with: (1) information on collocation availability and prices; and (2) collocation space. We also seek comment on what should be done in the event that an incumbent LEC fails to meet a specified interval.[274]

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[269] *See Petition of New York Telephone Company for Approval of its Statement of Generally Available Terms and Conditions pursuant to Section 252 of the Telecommunications Act of 1996 and Draft Filing of Petition for InterLATA Entry pursuant to Section 271 of the Telecommunications Act of 1996*, New York Commission Case 97-C-0271, Pre-Filing Statement of Bell Atlantic - New York, at 21-23 (N.Y.P.S.C. filed April 6, 1998).

[270] *Id.*

[271] *See NorthPoint July 7 Ex Parte* at 2-4.

[272] ALTS Petition at 21; NAS Comments (CC Docket No. 98-78) at 4-5.

[273] *See, e.g.*, NorthPoint July 7 *Ex Parte* at 2-3 (alleging that U S WEST has prevented NorthPoint from ordering collocation for several months by refusing to allow NorthPoint to place an order in any state in which it has not yet been approved as a competitive LEC, signed an interconnection agreement, and obtained state commission approval of the agreement, a process that NorthPoint asserts takes a minimum of six months in most states).

[274] *See* NorthPoint July 7 *Ex Parte* at 2-4.

e. Space Exhaustion

(1) Background

145. One of the major barriers facing new entrants that seek to provide advanced services on a facilities basis is the lack of collocation space in many LEC central offices. Under the Act, incumbent LECs must provide physical collocation unless they demonstrate to the state commission's satisfaction that "physical collocation is not practical for technical reasons or because of space limitations."[275] Because incumbent LECs have the incentive and capability to impede competition by reducing the amount of space available for collocation by competitors, the Commission, in the *Local Competition Order*, required incumbent LECs that deny requests for physical collocation on the basis of space limitations to provide the state commission with detailed floor plans or diagrams of their premises.[276] The Commission concluded that such submissions would aid the state commission in evaluating whether the denial of physical collocation was justified.[277]

(2) Discussion

146. We tentatively conclude that an incumbent LEC that denies a request for physical collocation due to space limitations should not only continue to provide the state commission with detailed floor plans, but should also allow any competing provider that is seeking physical collocation at the LEC's premises to tour the premises. Allowing competing providers to walk through a LEC's premise will enable competing providers to identify space that they believe could be used for physical collocation. If, after the tour of the premise, the incumbent LEC and competing provider disagree about whether space limitations at that premise make collocation impractical, both carriers could present their arguments to the state commission. We tentatively conclude that state commissions will be better able to evaluate whether a refusal to allow physical collocation is justified if competing providers can view the LEC's premises and present their arguments to the state commission. We seek comment on these tentative conclusions.

147. We further tentatively conclude that, upon request from a competitive LEC, an incumbent LEC should submit to the requesting carrier a report indicating the incumbent LEC's available collocation space. This report should specify the amount of collocation space available at each requested premises, the number of collocators, and any modifications in the use of the space since the last report. The report should also include measures that the incumbent LEC is taking to make additional space available for collocation. We seek

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[275] 47 U.S.C. § 251(c)(6).

[276] *Local Competition Order*, 11 FCC Rcd at 15805, ¶ 602; *see also* NorthPoint July 7 *Ex Parte* at 1.

[277] *Local Competition Order*, 11 FCC Rcd at 15805, ¶ 602.

comment on this tentative conclusion. Parties should address whether the incumbent LEC should be required to include any additional information in such a report.

148. We also seek comment on measures that would facilitate the use of virtual collocation for the provision of advanced services. Although competing providers may prefer physical collocation arrangements that permit their employees to install and repair their own equipment, we seek comment on measures that would make virtual collocation an effective alternative in locations where physical collocation space is unavailable. We tentatively conclude that all competitive LECs must be offered the same virtual collocation arrangements as the incumbent provides to its advanced services affiliate in order to meet its existing obligation to provide collocation on nondiscriminatory terms and conditions.[278]

149. We seek comment on any other measures that would help ensure that sufficient collocation space will be available in the future. Such measures may include, but are not limited to, modifying our rules on warehousing of space.[279] Parties should address how any such measures they propose would affect investment in, and deployment of, advanced services.[280]

f. Effects of Additional Collocation Requirements

150. Although this NPRM addresses ways in which the Commission can promote the deployment of advanced services, a number of our tentative conclusions and rule proposals relating to collocation may affect existing collocation arrangements. We seek comment on whether (and, if so, to what extent) any of our tentative conclusions or proposals might affect existing negotiated and arbitrated interconnection agreements, existing state requirements, or pending state proceedings.[281]

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[278] *See supra* ¶¶ 85-117 (discussing advanced services affiliates); *see also* NorthPoint July 29 *Ex Parte* at 1-2 (If the incumbent LEC requires that it perform the installation and maintenance of virtually collocated equipment for the competitive LEC, the requirement also must extend to the incumbent's advanced services affiliate, so that the incumbent's employees (not the affiliate's employees) install the equipment and charge the affiliate. Similarly, if the incumbent allows no one else to perform maintenance functions such as emergency repair in the event of an outage, the incumbent must extend this rule to its affiliate, and must charge the affiliate for maintenance costs, such as training.).

[279] In the *Local Competition Order*, the Commission concluded that incumbent LECs may retain a limited amount of floor space for defined future uses, but must allow competing providers to reserve space for future use on terms that are no less favorable. The Commission concluded, however, that incumbent LECs must relinquish any space held for future use prior to denying virtual collocation, but not physical collocation, due to lack of space. *Local Competition Order*, 11 FCC Rcd at 15805-06, ¶¶ 604-06; *see also* NorthPoint July 7 *Ex Parte* at 2.

[280] ESI July 30 *Ex Parte* at 5-6.

[281] *See* ALTS Petition at 38; CIX (CC Docket No. 98-78) at 10-11; e.spire Comments (CC Docket No. 98-78) at 10; Intermedia Comments (CC Docket No. 98-78) at 7; TRA Comments (CC Docket No. 98-78) at 9.

2. Local Loop Requirements

a. Overview

151. In the Order above, we grant ALTS' request for a declaratory ruling that incumbent LECs are required to provide xDSL-compatible loops to requesting carriers pursuant to section 251(c)(3) and our implementing rules.[282] We are concerned, however, that our existing rules requiring the unbundling of loops do not fully ensure that competitive providers of advanced services have adequate access to the "last mile," which is critical to ensure that a variety of providers are able to offer the full range of advanced services that consumers may demand. Accordingly, in this section, we seek comment on rule changes that we could adopt pursuant to section 251 that would strengthen the ability of new entrants to gain access to xDSL-compatible loops.

b. Background

152. In the *Local Competition Order*, the Commission identified the local loop as a network element that incumbent LECs must unbundle "at any technically feasible point."[283] It defined the local loop to include "two-wire and four-wire loops that are conditioned to transmit the digital signals needed to provide services such as ISDN, ADSL, HDSL, and DS1-level signals."[284] To the extent technically feasible, incumbent LECs must "take affirmative steps to condition existing loop facilities to enable requesting carriers to provide services not currently provided over such facilities."[285] For example, if a carrier requests an unbundled loop for the provision of ADSL service, and specifies that it requires a loop free of loading coils, bridged taps, and other electronic impedances, the incumbent must condition the loop to those specifications, subject only to considerations of technical feasibility. The incumbent may not deny such a request on the ground that it does not itself offer advanced services over the loop, or that other advanced services that the competitive LEC does not intend to offer could be provided over the loop. As the Commission stated in the *Local Competition Order*, "section 251(c)(3) does not limit the types of telecommunications services that competitors may provide over unbundled elements to those offered by the incumbent LEC."[286] Under our existing rules, incumbent LECs are also required to provide competing carriers with

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[282] *See supra* ¶ 52.

[283] *Local Competition Order*, 11 FCC Rcd at 15689-90, ¶¶ 377-79.

[284] *Id.* at 15691, ¶ 380.

[285] *Id.* at 15692, ¶ 382. The requesting carrier bears the cost of such conditioning. *Id.*

[286] *Id.* at 15691-92, ¶ 381.

nondiscriminatory access to the operations support systems functions for pre-ordering, ordering, and provisioning loops.[287]

153. The Commission also concluded in the *Local Competition Order* that it was "technically feasible" to unbundle loops that pass through integrated digital loop carrier systems or similar remote concentration devices, and required incumbent LECs to unbundle such loops for competitive LECs.[288] In the *Local Competition Order*, however, the Commission did not require incumbent LECs to unbundle sub-loop elements, which would allow competitors access to the loop at the remote terminal.[289] Even though the Commission determined that parties commenting on the issue of sub-loop unbundling had presented no technical impediments to such unbundling, the Commission concluded that sub-loop unbundling should be addressed by the states "on a case-by-case basis at this time."[290] The Commission further concluded that it would revisit the issue of sub-loop unbundling at a later time based on actions taken by states "or other future developments."[291]

c. Adoption of National Standards

154. We seek comment on the extent to which we should establish additional national rules for local loops pursuant to sections 201 and 251 in order to remove barriers to entry and speed the deployment of advanced services.[292] Parties should address whether adoption of additional uniform standards would encourage the deployment of advanced services by increasing predictability and certainty, and by facilitating entry by competitors providing advanced services in multiple states. We also ask commenters to address how any local loop requirements they suggest would affect investment in, and deployment of, advanced services.[293]

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[287] *Id.* at 15766, ¶ 523.

[288] *Id.* at 15692-93, ¶¶ 383-84.

[289] *Id.* at 15696, ¶ 391. Sub-loop elements in a digital loop carrier environment typically include the following components: (1) distribution cable, which typically is a two-wire or four-wire copper line that runs from the customer's premises to electronic equipment located at some point between the customer premise and the central office; (2) the feeder/distribution interface or concentration electronics, which generally are housed in underground controlled environmental vaults or above-ground enclosures, and which are used to aggregate distribution cables from individual customers and multiplex them onto a single high-capacity channel; and (3) feeder cable, typically fiber-optic cable that transports the high-capacity signal from the concentration electronics in the field to the incumbent LEC's central office.

[290] *Id.* at 15696, ¶ 391.

[291] *Id.* at 15696, ¶ 391.

[292] *See* ALTS Petition at 18-22; MCI July 30 *Ex Parte* at 24; NTIA July 17 *Ex Parte* at 14-17.

[293] ESI July 30 *Ex Parte* at 5-6.

155. We tentatively conclude that any standards we adopt in this proceeding should serve as minimum requirements and that states should continue to have flexibility to adopt additional requirements that respond to issues specific to that state or region. In the past two years, a number of states have adopted local loop requirements that go beyond the minimum requirements the Commission adopted in the *Local Competition* proceeding.[294] With respect to each subsection that follows, we encourage commenters to address whether any state approach to local loops might provide useful guidelines for additional national standards to facilitate deployment of advanced services. We welcome input from the states on each of these issues.

156. We note that competitive LECs can pursue remedies for violations of our local loop requirements before the Commission and the appropriate state commissions.[295] We seek comment on any measures we could take to aid enforcement of our local loop requirements.[296]

d. Loops and Operations Support Systems

157. We seek comment on whether our existing operations support system rules adequately ensure that competitive LECs have access to necessary information about loops.[297] We tentatively conclude that incumbent LECs should provide requesting competitive LECs with sufficient detailed information about the loop so that competitive LECs can make an independent determination about whether the loop is capable of supporting the xDSL equipment they intend to install. Thus, competitive LECs would need access to such information as whether the loops pass through remote concentration devices, what, if any, electronics are attached to loops, the condition and location of loops, loop length, the electrical parameters that determine the suitability of loops for various xDSL technologies, and other loop quality issues.[298] We tentatively conclude that it is important that competitors have the ability to make their own assessments because the parameters for determining

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[294] *See, e.g., In Re Petitions by AT&T Communications of the Southern States, Inc., MCI Metro Access Transmission Services, Inc., for Arbitration of Certain Terms and Conditions of a Proposed Agreement with GTE Florida Inc., Concerning Interconnection and Resale Under the Telecommunications Act of 1996*, Docket Nos. 960847-TP, 960980-TP, Order No. PSC-97-0064-FOF-TP (Fla. P.S.C. Jan. 17, 1997) (requiring sub-loop unbundling).

[295] *See supra* ¶ 55 (discussing the Commission's expedited complaint process to resolve competitive issues in an accelerated fashion).

[296] *See, e.g.*, NorthPoint July 29 *Ex Parte* at 1, 4-5 (Commission should ensure that competitors actually receive loop and operations support systems parity); CIX July 30 *Ex Parte*, Att. at 2 (a competitive Internet industry requires swift and effective enforcement of local loop requirements).

[297] *See, e.g.*, NAS Comments (CC Docket No.98-78) at 4; NorthPoint July 29 *Ex Parte* at 5.

[298] *See* MCI July 30 *Ex Parte* at 23; NEXTLINK Comments (CC Docket No. 98-78) at 14-15; NorthPoint July 7 *Ex Parte* at 8.

whether a loop is xDSL-compatible may differ for different technologies. Such parameters may also change as technology evolves.[299] We seek comment on these tentative conclusions and whether other types of information should also be made available. We note that, to the extent that a competitive LEC cannot obtain nondiscriminatory access to operations support systems, competitive LECs can pursue remedies for violations of our requirements before the Commission and the appropriate state commissions.[300] We seek comment on any additional measures we could take to ensure that competitive LECs receive nondiscriminatory access to operations support systems.[301] We tentatively conclude that incumbent LECs must provide competitors with the same access to operations support systems as the incumbent provides to its advanced services affiliate pursuant to its existing obligation to provide nondiscriminatory access to operations support systems.[302]

158. We also seek comment on the type of information that is currently available to incumbent LECs. Do incumbent LECs currently have a detailed inventory of existing loops? Do incumbent LECs currently have electronic access to such information? If so, is the same quality of access being made available to new entrants? We tentatively conclude that, in order to satisfy the nondiscrimination requirements of the Act, competitive LECs should have access to the same electronic interfaces that are available to incumbent LECs to obtain loop information.[303] We also tentatively conclude that, as new information becomes available, incumbent LECs should be required to share such information with new entrants immediately. We seek comment on these tentative conclusions.

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[299] Various manufacturers and research and development firms are improving upon and developing new varieties of xDSL technology. Furthermore, these firms may develop new methods to determine whether, and to what extent, loops are xDSL-compatible. *See e.g.*, http://telecom-info.bellcore.com/site-cgi/ido/index.html; http://www.xdsl.com/.

[300] *See supra* ¶ 55 (discussing the Commission's expedited complaint process to resolve competitive issues in an accelerated fashion).

[301] *See, e.g.*, CompTel/ALTS July 29 *Ex Parte* at 3; *see also* CIX July 30 *Ex Parte*, Att. at 2 (a competitive Internet industry requires that competitive LECs obtain timely access to conditioned loops and swift and effective enforcement of this requirement).

[302] *See supra* ¶¶ 85-117 (discussing advanced services affiliates).

[303] *See* 47 U.S.C. § 251(c)(3).

e. Loop Spectrum Management

159. We seek comment on the way in which we should address loop spectrum issues. In particular, we ask commenters to address any interference that may result from provision of advanced telecommunications capability using different signal formats on copper pairs in the same bundle.[304]

160. Twisted copper pairs, used to deliver xDSL-based services and other services, including plain old telephone service, are typically housed within binder groups. Signals from one pair within a binder group can generate noise in other pairs through electromagnetic coupling, commonly termed "crosstalk." Crosstalk can limit service performance.[305] We ask parties to suggest ways to determine when a particular service, technology or piece of equipment causes network interference such that use of the particular service, technology, or piece of equipment should be prohibited.[306] We also ask commenters to suggest ways to distinguish between legitimate claims that particular services, technologies or equipment create spectrum interference and claims raised simply to impede competition. We seek comment on whether the Commission should adopt any industry standards as the basis for national spectrum management requirements.[307] We also seek comment on how any requirements should evolve over time so as to encourage and not stifle innovation. In addition, we seek comment on other approaches to spectrum management that would foster pro-competitive use of the loop plant by incumbent LECs and new entrants, while providing necessary network protection.

161. If we adopt any national standards on spectrum management, we propose to impose the same spectral requirements on both incumbent LECs and new entrants.[308] We seek comment on whether and how to grandfather existing technology that does not satisfy

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[304] *See, e.g.*, NorthPoint July 7 *Ex Parte* at 8-9.

[305] *See* MCI July 30 *Ex Parte* at 19.

[306] *See, e.g., id.*

[307] The T1E1.4 working group of the American National Standards Institute (ANSI) is developing standards for xDSL spectrum management. *See e.g.*, Network and Customer Installation Interfaces - Asymmetric Digital Subscriber Line (ADSL) Metallic Interface (ANSI T1.413-1995) (ANSI T1.413 standard presents the electrical characteristics of the ADSL signals appearing at the network interface. The physical interface between the network and the customer installation is also described. The transport medium for the signals is a single twisted-wire pair that supports both Message Telecommunications Service (POTS) and full-duplex (simultaneous two-way) and simplex (from the network to the customer installation) digital services. This interface standard provides the minimal set of requirements for satisfactory transmission between the network and the customer installation. Equipment may be implemented with additional functions and procedures.) ftp://ftp.t1.org/pub/t1stds/413-95.txt. *See also* US West Spectrum Management *Ex Parte*, CC Docket No. 98-26, at 7 (filed July 21, 1998) (U S WEST July 21 *Ex Parte*); NorthPoint July 7 *Ex Parte* at 8-9.

[308] *See* NorthPoint July 7 *Ex Parte* at 8-9.

any new requirements. For example, we might adopt a "riparian rights" approach, under which new users could not interfere with technology already deployed, and would tolerate interference from the pre-existing technology. We seek comment on how we might best administer the grandfathering process.

162. We also seek comment on whether two different service providers should be allowed to offer services over the same loop, with each provider utilizing different frequencies to transport voice or data over that loop. xDSL technology, for example, separates a single loop into a POTS channel and a data channel, and can carry both POTS and data traffic over the loop simultaneously.[309] A competitive LEC may want to provide only high-speed data service, without voice service, over an unbundled loop. Should the competitive LEC have the right to put a high frequency signal on the same loop as the incumbent LEC's voice signal? If a competitive LEC takes an entire loop, could the competitive LEC sell the voice channel back to the incumbent LEC or to another carrier? Should the competitive LEC be allowed to lease the loop for data services and resell the voice service of the incumbent LEC? Commenters should address with particularity the advantages and disadvantages of these various possibilities, and what practical considerations would arise in each situation. For example, which entity would manage the frequency division multiplexing equipment if two carriers are offering services over the same loop? We tentatively conclude that any voice product that the incumbent LEC provides to its advanced services affiliate would have to be made available to competitive LECs on the same terms and conditions.[310] For example, if the advanced services affiliate leases the loop and resells the incumbent's voice service, the competitive LEC must be allowed to do likewise.

f. Uniform Standards for Attachment of Electronic Equipment at the Central Office End of a Loop

163. To facilitate competition in the local loop, we tentatively conclude that there should be uniform national standards for attachment of electronic equipment (such as modems and multiplexers) at the central office end of a loop by incumbent LECs and new entrants. The requirements would apply to both incumbent LEC and new entrant equipment. The requirements would serve the same role, for the attachment of equipment to the central office end of a loop, as do the *Part 68 - Connection of Terminal Equipment to the Telephone Network* - rules for the attachment of customer premises equipment. Currently, each incumbent LEC sets its own requirements for central office equipment, and each has its own processes for certifying equipment before it can be connected to loop plant. This increases new entrants' costs and time to market. A simple set of national requirements would reduce new entrants' costs, speed their time to market, and reduce confusion. We seek comment on

[309] *See* Sprint Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 8; APK Net, Cyber Warrior, Helicon Online, Inforamp, Internet Connect, MTP, and Proaxis Communications Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 14-15; US West Comments (CC Docket Nos. 98-11, 98-32) at 5-6.

[310] *See supra* ¶¶ 85-117 (discussing advanced services affiliates).

the content of these requirements. We also seek comment on whether central office equipment complying with these requirements should be certified, and if so, how.

g. Redefining the Local Loop to Ensure Competitive LEC Access to Loops Capable of Providing Advanced Services

164. In the Order above, we emphasize that, under our existing rules, incumbent LECs are required to make xDSL-compatible loops available to competitors.[311] We seek comment on whether our current definition of the loop is sufficient to ensure that competitive LECs have access to the loop functionalities they need to offer advanced services, such as xDSL-based services, or whether any refinements to that definition are necessary to ensure that incumbent LECs are providing competitive LECs with loops capable of delivering such advanced services.[312] Commenters should also address whether our current definition is sufficiently flexible and forward-looking to facilitate deployment of new technologies and new services in the future.

h. Unbundling Loops Passing through Remote Terminals

(1) Background

165. xDSL-Based Services over Digital Loop Carrier Technology. A traditional copper loop typically runs from the network interface device at the customer's premises to the LEC's central office. Because of voice transmission quality degradation and maintenance challenges associated with long copper loops, along with the economic efficiencies associated with aggregating individual loops, LECs have begun to deploy remote concentration devices. Remote concentration devices, such as digital loop carrier (DLC) systems,[313] are an efficient means of aggregating subscriber traffic on to common transmission facilities, usually fiber, for

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[311] *See supra* ¶ 52.

[312] *See, e.g.*, ALTS Petition at 16-17; e.spire Comments (CC Docket No. 98-78) at 5-6 (if competitive LECs are refused permission to interconnect with xDSL equipment, are refused loops with xDSL electronics, and not given access to loops free of loading coils or bridged taps, competitive LECs will effectively be prevented from providing xDSL-based services on a significant number of loops).

[313] The use of DLCs varies by telephone company and typically ranges from almost zero to as much as 30 percent of the local loops within a given LEC's local network. A DLC converts analog signals, from many copper loops that terminate at a remote terminal, into digital signals, multiplexes the signals, and transports them, usually over fiber, to the central office. The two traditional DLC systems are universal DLC (UDLC) and integrated DLC (IDLC). UDLC, the older of the two systems, is not directly integrated with the switch, and converts digital signals back to analog at the central office before delivering the signals to the central office switch. IDLC is integrated with the switch and provides a direct, digital interface to a digital central office switch. It is more difficult to unbundle IDLC traffic, because UDLC traffic is demultiplexed before it reaches the central office switch, while IDLC traffic is not. For a more detailed discussion of IDLC and the methods of unbundling IDLC-delivered loops, *see infra*, Appendix C.

transmission from a remote terminal to the central office, rather than dedicating a separate transmission facility (*e.g.*, a copper loop) for each subscriber's traffic all the way from the customer's premises to the central office.

166. Although many local loops are able to support xDSL technology, some are not. For example, xDSL is distance sensitive, and bandwidth for xDSL-based services decreases as loop length increases.[314] In addition, loop equipment such as loading coils[315] and bridged taps,[316] which are deployed on many local loops, interfere with xDSL transmission. Furthermore, with current xDSL technology, xDSL transmissions can only be supported over continuous copper loops. Thus, in order to provide an xDSL-based service over a loop passing through a remote terminal, the loop must either be reassigned to a physical copper pair connecting the end user's premises to the central office, or the xDSL portion must terminate at the remote terminal, where it can be converted to a format compatible with the digital loop carrier (*i.e.*, through the use of a DSLAM at the remote terminal).

(2) Discussion

167. Unbundling DLC-Delivered Loops. As discussed in the Order above, we grant ALTS' request for a declaratory ruling that incumbent LECs are required to provide loops capable of transporting high-speed digital signals where technically feasible.[317] This requirement includes the obligation to unbundle high-speed data-compatible loops whether or not a remote concentration device like a digital loop carrier is in place on the loop.[318] We tentatively conclude that providing an xDSL-compatible loop as an unbundled network element is presumed to be "technically feasible" if the incumbent LEC is capable of providing

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[314] Different variations of xDSL technology have different distance limitations. *See* "General Introduction to Copper Access Technologies," http://www.adsl.com/general_tutorial.html.

[315] LECs use loading coils to modify the electrical characteristics of the local loop, allowing better quality voice frequency transmission over extended distances (typically greater than 18,000 feet). In this extended distance scenario, loading coils are placed every 6,000 feet on the line. Loading coils are not compatible with the higher frequency attributes of xDSL transmissions and they must be removed before xDSL-based services can be provisioned. The use of loading coils varies by LEC and typically ranges from virtually zero to as much as 20 percent of the local loops within a given LEC's access network.

[316] A bridged tap is any portion of a loop that is not in the direct talking path between the central office and the service users' terminating equipment. For example, a bridged tap may be an extension of the circuit beyond the service user's location. In order to provide xDSL, bridged taps generally have to be removed. Incomplete documentation on the physical layout of the network and opening and closing cable splices can make the process of locating and removing bridged taps a time consuming and, therefore, costly process.

[317] *See supra* ¶ 52.

[318] *See supra* ¶¶ 54, 153; *see also* NAS Comments (CC Docket No 98-78) at 2-3 (Commission should affirm that incumbent LECs have a duty to provide xDSL-equipped loops as an unbundled element when those loops are provisioned through a digital loop carrier or similar remote terminal).